

fig. 2

Process 50: Initialize pacemaker and select appropriate settings. Process 51: Collect ECG and SCG data from the patient. Process 52: Filter and scale ECG and SCG signals. Process 53: Digitize ECG and SCG data to form companion ECG and SCG data sets. Process 54: Locate QRS complex in the ECG data set. Process 55: Perform rhythm analysis of ECG data set to exclude non-paced beats. Process 56: Set pointers into SCG data set to select and form reduced SCG data set. Process 57: Use QRS locations in ECG data to set fiducial mark in SCG data set to define SCG wavelets. Process 58: Establish comparison points for SCG data set based upon QRS-QRS intervals measured in companion ECG data set. Process 59: Partition SCG waveform into comparable SCG wavelets based upon comparison points applied by process 57 and 58. Process 60: Cross correlate comparable SCG wavelets to determine self similarity and to check for dominant family. Process 61: Add SCG wavelets together to form canonical SCG if there is a dominant family. Process 62: Add corresponding companion ECG wave segments together to form canonical ECG. Process 63: Extract Q-wave location and V pace event from canonical ECG. Process 64: Extract AS, MC, IM, AO, RE, AC, MO, and RF from canonical SCG. Process 65: Compute time intervals such as (Q to AO) and (AO to AC). Process 66: Compute index of cardiac performance for the selected A-V delay interval, the selected pacing rate, and the selected mode (e.g., computing (Q/MC)/ LVET; (VP/MC)/ LVET; MC/AO/LVET)

resynchronization is achieved.

Process 67: Repeat and look for best settings until optimal cardiac

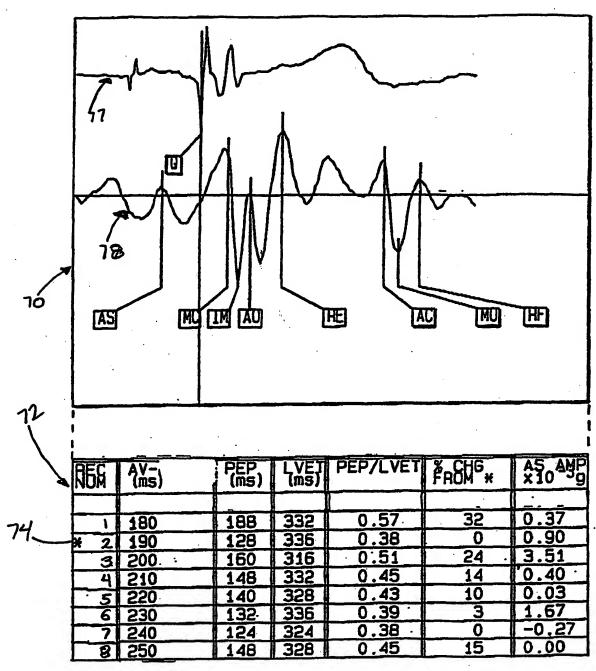


FIG. 4

